APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,470	07/31/2003	Robert Kincaid	10020348-1	5138

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EXAMINER
BRUSCA, JOHN S

ART UNIT	PAPER NUMBER
1631	

NOTIFICATION DATE	DELIVERY MODE
10/30/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPOPS.LEGAL@agilent.com

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 August 2008*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7,9 and 10* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-7,9 and 10* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1.   In view of the appeal brief filed on 12 August 2008, PROSECUTION IS HEREBY

REOPENED. **A new ground of rejection of claim 9 is set forth below.**

To avoid abandonment of the application, appellant must exercise one of the following

two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37

CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an

appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee

can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have

been increased since they were previously paid, then appellant must pay the difference between

the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing

below:

/Marjorie Moran/

Supervisory Patent Examiner, Art Unit 1631.

Status of the Claims

2.   Claims 1-7, 9, and 10 are pending.

Claims 1-7, 9, and 10 are rejected.

Claim Rejections - 35 USC § 103

3.   The rejection of claims 1-6 under 35 U.S.C. 103(a) as being unpatentable over Taylor

(U.S. Patent Application Publication No. 2002/0052882 A1) in view of Nova et al. (U.S. Patent

No. 6,017,496) in the Office action mailed 21 March 2008 is withdrawn in view of the

arguments presented in the Appeal Brief filed 12 August 2008.

4.   The rejection of claims 1, 7, and 10 under 35 U.S.C. 103(a) as being unpatentable over

Taylor in view of Nova et al. as applied to claims 1-6 above, and further in view of Ramdas et al.

in the Office action mailed 21 March 2008 is withdrawn in view of the arguments presented in

the Appeal Brief filed 12 August 2008.

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

6.   This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c)

and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7.   Claims 1-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Lockhart et al. (Nature Biotechnology Vol. 14, pages 1675-1680 (1996)) in view of Taylor (U.S.

Patent Application Publication No. 2002/0052882 A1) in view of Nova et al. (U.S. Patent No.

6,017,496).

The claims are drawn to a virtualizing microarray system comprising a microarray comprising a memory element that contains data of the microarray features and instructions that generate data of a subset of the data of the microarray features. In some embodiments the virtual microarray comprises data concerning the position of the elements of the microarray, the type of probe in the microarray, the target molecule of the probe of the microarray, and the function, process, and cellular component of the element of the microarray. In some embodiments the virtual microarray is made by removing features of the microarray. In some embodiments the virtual microarray comprises data concerning molecules whose synthesis is directed by the molecule that binds to a probe in the microarray. In some embodiments the microarray contains a header and the instructions associate the header with features in the microarray.

Lockhart et al. shows at least in figure 1 that oligonucleotide arrays are useful for determining the levels of messenger RNA in samples applied to the arrays. Lockhart et al. shows isolation of messenger RNA from cytoplasm of cells on page 1679, and analysis of array data by scanning and computerized analysis on page 1679.

Taylor shows a virtual microarray in page 1 in which correspondence between positions of a physical microarray and the virtual microarray are known. Taylor shows deletion of data from the microarray when creating the virtual microarray in page 2, paragraphs 28 and 29, and page 3 paragraph 34. Taylor shows virtual microarrays that comprise data related to DNA probe elements of the microarray on pages 6-9, including information about the probe, and the gene and tissue from which it was derived. on pages 6-9 Taylor shows that the data associated with the microarray includes 111 examples of data categories, and that the target molecule data may include a name of the probe (paragraph 123), clone ID (paragraph 134), Unigene cluster ID, gene

symbol, locus ID, chromosome ID, GenBank accession number, tissue from which the sample

applied to the probe was extracted, gene map, gene name, organism from which the sample was

extracted, and sequence of the probe, (paragraphs 135-114). Taylor does not show a memory

element that contains data of the microarray features and instructions that generate data of a

subset of the data of the microarray features. Taylor does not show data concerning molecules

whose synthesis is directed by the molecule that binds to a probe in the microarray. Taylor does

not show headers that are associated with the microarray features.

Nova et al. shows in the abstract an array comprising a memory comprising data. In

columns 6 and 8 Nova et al. shows that the array memory may comprise data of the nucleic acids

in the array. In columns 6 and 8 Nova et al. shows that the array data comprise identifying

information. In figure 43 and column 74, Nova et al. shows data of an array that comprises

headers and data for three types of data of the array. In column 16, lines 43-45 show that

identification codes are associated with elements of the array. In column 50, lines 26-29, Nova et

al. shows that identification codes can be associated with an array. In column 54, lines 37-50,

and column 72, lines 35-45, Nova et al. shows that identification codes of arrays in the logic

apparatus are used as links to the data of the array. In column 13, Nova et al. shows that the

memory may contain data of molecules that are synthesized by the array. In columns 13-14 Nova

et al. shows that arrays with memory are useful to track or identify molecules that interact with

the array in various types of assays.

It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to use the oligonucleotide arrays of Lockhart et al. to assess gene expression

levels by use of the virtual array of Taylor because Taylor shows a method of analyzing the data

obtained from a microarray. It would have been further obvious to use the array with memory of

Nova et al. because Nova et al. shows that their array with memory is useful to track or identify

molecules that interact with an array. It would have been further obvious to include instructions

in the memory of the array to use subsets of the array because Taylor shows instances in which

only a portion of the data is of interest and recording instructions to use portions of an array for

different purposes would allow the virtual array of Taylor to select the data of the array that is of

interest. It would have been further obvious to associate headers such as identification codes to

with array data because Nova et al. provides guidance to do so for the purpose of accessing data

of a microarray of interest. Regarding the limitations of claim 5 that the data include molecular

function, biological process, and cellular component of the target molecule to which the probe

hybridizes, such data inherently includes the molecular function and the biological process

relevant to the target molecule in the name of the gene, and and Lockhart et al. shows that

mRNA can be isolated from the cytoplasmic compartment of cells.

8.   Claims 1, 7, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Lockhart in view of Nova et al. as applied to claims 1-6 and 9 above, and further in view of

Ramdas et al.

        The claims are drawn to a virtual microarray system comprising a subset of data of a

microarray. In some embodiments the virtual microarray is made by a scanner, a data processing

system, or a visualization system.

        Lockhart in view of Taylor in view of Nova et al. as applied to claims 1-6 and 9 above

does not show a virtual microarray made by a scanner and a data processing and visualization

system.

Ramdas et al. shows three systems that allow for automated analysis of microarrays that comprise scanners and computer controlled visualization systems in the abstract and throughout. Ramdas et al. conclude on page 552 that all three systems provide useful and comparable outputs of data from a microarray.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the method of Lockhart in view of Taylor in view of Nova et al. as applied to claims 1-6 and 9 above by use of any of the scanners of Ramdas et al. because Ramdas et al. shows that the scanners allow for automation and useful determinations of the data in a microarray.

Response to Arguments

9.   Applicant's arguments in the Appeal Brief filed 12 August 2008 have been fully considered but they are not persuasive. The applicants correctly note that claim 9 was not included in the rejection under 35 U.S.C. 103 over Taylor in view of Nova et al. The above revised rejection includes claim 9 as rejected as obvious over Taylor in view of Nova et al. The applicants state that Taylor fails to show a subset of data from a single microarray, however Taylor shows using a portion of the data of a single microarray at least in paragraphs 28, 29, and 34. The applicants cite paragraphs 28, 29, and 34 of Taylor to support the contention that Taylor shows virtual microarrays must be derived from multiple microarrays. However the cited passages do not state that virutual microarrays must be created from a plurality of microarrays. The applicants cite the abstract of Taylor as showing that virtual microarrays must be created from a plurality of microarrays, but the abstract merely exemplifies virtual microarrays derived from multiple microarrays without teaching away from virtual microarrays derived from a single

microarray. The applicants cite paragraph 4 of Taylor as showing that virtual microarrays must

be created from a plurality of microarrays, but the passage merely states that microassay data can

be voluminous and require data processing for lucidity. It is further noted that the claimed

subject matter does not have a limitation that the virtual microarray consists entirely of data from

a single microarray, rather the claimed subject matter is open to virtual microarrays that

comprise data of subsets of multiple microarrays. The applicants state that Taylor does not show

a virtual microarray comprising data of molecular function, biological process and cellular

components as required in claim 5. However on pages 6-9 Taylor shows that the data associated

with the microarray includes 111 examples of data categories, and that the target molecule data

may include a name of the probe (paragraph 123), clone ID (paragraph 134), Unigene cluster ID,

gene symbol, locus ID, chromosome ID, GenBank accession number, tissue from which the

sample applied to the probe was extracted, gene map, gene name, organism from which the

sample was extracted, and sequence of the probe, (paragraphs 135-114). The characterization of

the compartment from which the sample is isolated is also shown in Lockhart et al.

Conclusion

10.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to John S. Brusca whose telephone number is 571 272-0714. The

examiner can normally be reached on M-F 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Marjorie A. Moran can be reached on 571-272-0720. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/John S. Brusca/
Primary Examiner
Art Unit 1631